

DATE: December 6, 2005

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TO: Region Engineers
Region Delivery Engineers
Region Development Engineers
TSC Development Engineers
TSC Managers
Resident/Project Engineers
Region Construction Engineers
Region Traffic and Safety Engineers
TSC Traffic and Safety Engineers
Region Maintenance Engineers

FROM: Larry E. Tibbits
Chief Operations Officer

John C. Friend
Engineer of Delivery

SUBJECT: Bureau of Highway Instructional Memorandum 2005-15
Box Span Displays for Traffic Signals

The Engineering Operations Committee has approved use of the box span signal layout as the department's standard design for all trunkline intersections being constructed or modernized. For a typical intersection, the box span design requires four support structures (one structure in each quadrant of the intersection). This design style is credited with improving motorist visibility, thus providing a positive contribution to the department's senior mobility initiatives. This signal layout also improves safety during signal maintenance.

It is estimated adoption of the box span display will add \$15,000 to \$20,000 to the average \$45,000 cost of a diagonal span option. Construction projects with traffic signal installations should include this increase during project scoping. All prequalified signal design consultants have been notified of this change in practice and will use the box span design for all future design projects.

The box span design will not be considered for overhead flashing beacon installations or at intersections where the cone of vision requirement is not met. A design exception to use the diagonal span is required where inadequate right-of-way exists or where utility clearance cannot be obtained in a reasonable manner. Attached are Guidelines for Traffic Signal Design – Box

Span Display. These guidelines provide direction for project development. These guidelines will be modified when required.

Chief Operations Officer

Engineer of Delivery

BOHD:T&S:PJC:nw

Subject Index: Traffic Control

Attachment

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Guidelines for Traffic Signal Design – Box Span Design

The box span design is the department's standard traffic control signal design for all trunkline intersections being signalized or modernized. Exceptions may be granted when one of the following conditions exist.

1. Cost Prohibitive – The estimated costs exceed the cost of the diagonal span by more than \$50,000. This includes:
 - Cost for right-of-way to accommodate the box span display
 - Cost for relocation of conflicting underground or overhead utilities
2. Time Delay – A long delay to install the devices because of the need for utility relocation or right-of-way purchase. The delay may be deemed unacceptable due to public safety considerations.

Exceptions must have the concurrence of the Region Engineer and the Traffic and Safety Support Area Operations Engineer.

General Notes

1. For most installations, the box span design will require a ground-mounted controller cabinet due to the additional wiring necessary for this design.
2. For overhead flashing beacon installations, box span designs are not to be used.
3. If the distance from the stop bar to the signal indication for any approach exceeds 150 feet (cone of vision requirement), the box span design shall not be used.
4. Special considerations may be applied to corridor signal modernization or corridor construction projects to assure consistency along the corridor.